

LISTING OF THE CLAIMS

The following is a complete listing of revised claims with a status identifier in parentheses.

LISTING OF THE CLAIMS

1. (Previously Presented) A transponder reader for reading data from a plurality of transponders, the transponders sending data according to a plurality of transponder signaling protocols, the transponder reader comprising:

an antenna configured to send a first analog signal to one of the transponders and to receive a second analog signal from the one transponder;

a signal processor configured to analyze the second analog signal received by the antenna;

a digital processor,

an analog to digital converter configured to,

receive the second analog signal from the antenna,

convert the second analog signal to a first digital signal, and

transmit the first digital signal to the digital processor, the digital processor configured to identify, from the first digital signal, which transponder signaling protocol of the plurality of transponder signaling protocols was used to send the second analog signal.

2. (Previously Presented) The transponder reader according to claim 1, wherein the signal processor is configured to demodulate, detect, and decode digital signals according to at least two different transponder signaling protocols.

3. (Previously Presented) The transponder reader according to claim 1, further comprising:

a transmitter configured to send the analyzed digital signal to a post-processor.

4. (Previously Presented) The transponder reader according to claim 1, wherein,

the antenna includes a digital interface configured to receive digital messages from the digital processor and transmit digital messages to the digital processor, the digital interface configured to control characteristics of the antenna based on the received digital messages, and

the antenna is configured to transmit digital messages relating to the antenna characteristics to the digital processor.

5. (Previously Presented) The transponder reader according to claim 4, wherein the digital messages sent to the digital interface include at least one of antenna ready to send information, antenna on line information, output amplification information, and frequency tuning coefficients.

6. (Previously Presented) The transponder reader according to claim 1, wherein the plurality of transponder signaling protocols include at least two of half-duplex protocols, full-duplex protocols, proprietor protocols (B-protocol) and read/write protocols.

7. (Previously Presented) The transponder reader according to claim 1, further comprising:

a digital to analog converter, the digital processor configured to supply a second digital signal to the digital to analog converter, the digital to analog converter configured to convert the second digital signal to the first analog signal and transmit the first analog signal to the antenna.

8. (Previously Presented) The transponder reader according to claim 1, wherein the digital processor is configured to demodulate the first digital signal according to at least two different demodulation schemes.

9. (Previously Presented) The transponder reader according to claim 8, wherein the digital processor is configured to detect symbols from the demodulated digital signal according to at least two different symbol detection schemes.

10. (Previously Presented) The transponder reader according to claim 9, wherein the digital processor is configured to decode the detected symbols according to at least two different symbol decoding schemes.

11. (Previously Presented) The transponder reader according to claim 10, wherein the digital processor is configured to decode the detected symbols by performing an error detection check.

12. (Previously Presented) The transponder reader according to claim 10, wherein the digital processor is configured to detect which of the two different demodulating, detection, and decoding schemes produce a highest signal detection quality, the digital processor configured to demodulate, detect, and decode according to the determined schemes.

13. (Previously Presented) The transponder reader according to claim 10, wherein the digital processor is configured to receive an operator selection among the two different demodulating, detection, and decoding schemes, the digital processor configured to demodulate, detect, and decode according to the selection.

14. (Previously Presented) The transponder reader according to claim 1, wherein the transponder signaling protocol used to send the second

analog signal is a full duplex protocol, the transponder reader further comprising:

a subtractor configured to subtract the first analog signal from the second analog signal so as to remove a contribution from the first analog signal from reception of the second analog signal.

15. (Previously Presented) The transponder reader according to claim 14, wherein the subtractor is configured to boost the first analog signal before subtracting the first analog signal from the second analog signal.

16. (Previously Presented) The transponder reader according to claim 1, wherein the antenna is configured to send further analog signals using the transponder signaling protocol used to send the second analog signal.

17. (Previously Presented) The transponder reader according to claim 16, wherein the digital processor is configured to identify the transponder signaling protocol used to send the second analog signal in a start up sequence and assume that all transponders are working according to the transponder signaling protocol used to send the second analog signal.

18. (Previously Presented) The transponder reader according to claim 1, wherein the digital processor is configured to identify the transponder

signaling protocol used to send the second analog signal based further on an operator selection of an appropriate transponder signaling protocol.

19. (Previously Presented) The transponder reader according to claim 4, wherein the digital interface is configured to set the antenna characteristics based on detected environmental characteristics so as to achieve optimal signaling detection quality in relation to the electromagnetic environment.

20. (Previously Presented) The transponder reader according to claim 9, wherein a phase of the first analog signal is controlled.

21. (Previously Presented) A method for reading data from transponders, the transponders sending data according to a plurality of transponder signaling protocols, the method comprising:

sending, with an antenna, a first analog signal to one of the transponders;

receiving, with the antenna, a second analog signal from the one transponder;

converting the second analog signal from an analog domain to a first digital signal in a digital domain;

identifying, with a digital processor, which transponder signaling protocol of the plurality of transponder signaling protocols was used to send

the second analog signal, the identifying being based on the first digital signal; and

analyzing the first digital signal according to the transponder signaling protocol used to send the second analog signal.

22. (Previously Presented) The method according to claim 21, wherein the analyzing includes demodulating, detecting, and decoding the first digital signal according to at least two different transponder signaling protocols.

23. (Previously Presented) The method according to claim 21, further comprising:

sending the analyzed first digital signal to a post-processor.

24. (Previously Presented) The method according to claim 21, wherein the antenna includes a digital interface configured to receive digital messages from the digital processor and transmit digital messages to the digital processor, the method further comprising:

controlling characteristics of the antenna based on the received digital messages; and

transmitting digital messages relating to the antenna characteristics to the digital processor.

25. (Previously Presented) The method according to claim 24, wherein the digital messages sent to the digital interface include at least one of antenna ready to send information, antenna on line information, output amplification information, and frequency tuning coefficients.

26. (Previously Presented) The method according to claim 21, wherein the plurality of transponder signaling protocols include at least two of half-duplex protocols, full-duplex protocols, proprietor protocols (B-protocol) and read/write protocols.

27. (Previously Presented) The method according to claim 21, further comprising:

transmitting a second digital signal, from the digital processor to a digital to analog converter configured to convert the second digital signal to the first analog signal,

transmitting the first analog signal, from the digital to analog converter to the antenna for transmission.

28. (Previously Presented) The method according to claim 21, further comprising:

demodulating, with the digital processor, the first digital signal according to at least two different demodulation schemes.

29. (Previously Presented) The method according to claim 28, further comprising:

detecting, with the digital processor, symbols from the demodulated digital signal according to at least two different symbol detection schemes.

30. (Previously Presented) The method according to claim 29, further comprising:

decoding, with the digital processor, the detected symbols according to at least two different symbol decoding schemes.

31. (Previously Presented) The method according to claim 30, wherein the decoding includes performing an error detection check.

32. (Previously Presented) The method according to claim 30, further comprising:

detecting which of the two different demodulating, detection, and decoding schemes produce a highest signal detection quality, the digital processor configured to demodulate, detect, and decode according to the detected schemes.

33. (Previously Presented) The method according to claim 30, further comprising:

receiving, from an operator, a selection among the two different demodulating, detection, and decoding schemes, the demodulating, detecting, and decoding being executed according to the selection.

34. (Previously Presented) The method according to claim 21, wherein the plurality of transponder signaling protocols includes a full duplex protocol, the method further comprising:

subtracting the first analog signal from the second analog signal so as to remove a contribution from the first analog signal from reception of the second analog signal.

35. (Previously Presented) The method according to claim 34, further comprising:

boosting the first analog signal before the subtracting.

36. (Previously Presented) The method according to claim 21, further comprising:

sending further analog signals using the transponder signaling protocol used to send the second analog signal.

37. (Previously Presented) The method according to claim 36, wherein, the identifying the transponder signaling protocol used to send the second analog signal is executed in a start up sequence,

and further signal processing assume that all transponders are working according to the transponder signaling protocol used to send the second analog signal.

38. (Previously Presented) The method according to claim 21, further comprising:

receiving an operator selection of an appropriate transponder signaling protocol.

39. (Previously Presented) The method according to claim 24, further comprising:

setting the antenna characteristics based on detected environmental characteristics so as to achieve optimal signaling detection quality in relation to the electromagnetic environment.

40. (Previously Presented) The method according to claim 24, further comprising: controlling a phase of the first analog signal.

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